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John F. McCann
Vice President – Nuclear Safety,
Emergency Planning and Licensing

ENOC-13-00007
March 29, 2013

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: **Decommissioning Funding Status Report per 10 CFR §50.75(f)(1)
and 10 CFR 50.82(a)(8)(v) -- Entergy Nuclear Operations, Inc**

Big Rock Point
Docket 50-155
License No. DPR-6

Palisades Nuclear Plant
Docket 50-255
License No. DPR-28

Indian Point Nuclear
Generating Stations 1, 2, & 3
Dockets 50-3, 50-247 and 50-286
License Nos. DPR-6, DRP-26, DPR-64

James A. FitzPatrick
Nuclear Power Plant
Docket 50-333
License No. DPR-59

Pilgrim Nuclear Power Station
Docket 50-293
License No. DPR-35

Vermont Yankee Nuclear Power Station
Docket 50-271
License No. DPR-28

- REFERENCES: 1. NUREG-1307, "Report on Waste Burial Charges," Revision 15, dated January 2013.
2. NRC Regulatory Issue Summary 2001-07, "10 CFR 50.75(f)(1) Reports on the Status of Decommissioning Funds (Due March 31, 2001)."

Dear Sir or Madam:

10 CFR 50.75(f)(1) requires each power reactor licensee to report to the NRC by March 31, 1999, and every two years thereafter, on the status of its decommissioning funding for each reactor, or share of a reactor, that it owns. 10 CFR 50.82(a)(8)(v) requires licensees of shutdown sites to report to the NRC annually, by March 31, on the status of decommissioning financial assurance for those sites. On behalf of Entergy Nuclear Indian Point 2 LLC (Indian Point 1 & 2), Entergy Nuclear Indian Point 3 LLC, Entergy Nuclear Vermont Yankee LLC, Entergy Nuclear Generation Company (Pilgrim Station), Entergy Nuclear FitzPatrick LLC, and Entergy Nuclear Palisades LLC (Palisades and Big Rock Point), Entergy Nuclear Operations, Inc. hereby submits the information requested for power reactors operated by Entergy Nuclear

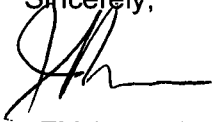
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Operations, Inc. The reports provided in Attachments 1 through 13 for the eight licensed facilities addressed by this filing, were prepared in accordance with NUREG-1307 (Reference 1) and NRC Regulatory Issue Summary 2001-07 (Reference 2). Attachments 14 and 15 are updated site specific decommissioning cost estimates for Indian Point Unit 1 and Indian Point Unit 2, respectively. The Minimum Funding Assurance calculation worksheets, derived from LIC-205 Revision 4, are provided in Attachment 16 for the convenience of the reviewer.

The aforementioned worksheets, using the December 31, 2012 trust fund balances and parent guarantee amounts, indicate that all of the plants covered by this submittal met or exceeded the NRC's funding requirements, except that Palisades was approximately 2 percent below the requirement. Since December 31, 2012, the decommissioning trust fund for Palisades has increased. Entergy Nuclear Operations, Inc. has recomputed the financial assurance for Palisades using the most recently available month-end balance information (February 28, 2013) and removing two months from the escalation calculation. The revised worksheet, included in Attachment 16, indicates that the currently-available financial assurance for Palisades now exceeds the NRC's funding requirements. Accordingly, the licensees conclude that no further action is required at this time to demonstrate adequate funding assurance for decommissioning the plants covered by this submittal.

There are no new commitments made in this letter. If you have any questions, please contact Mr. David Mannai, Senior Manager, Nuclear Safety & Licensing at 802-380-1175.

Sincerely,



JFM / djm / krk

Attachments: As described above

cc: See next page

cc:

Mr. J. A. Aluise (ENT)
Ms. W. C. Curry (ECH)
Mr. J.S. Forbes (ECH)
Mr. B. E. Green (TMBR)
Mr. D. J. Mannai (WPO)
Mr. J. F. McCann (WPO)
Mr. T. G. Mitchell (WPO)
Mr. M. Perito (WPO)
Mr. L. Jager Smith (ECH)

Mr. M. Colomb (JAF)
Mr. R. G. Smith (PIL)
Mr. J. A. Ventosa (IPEC)
Mr. A. J. Vitale (PAL)
Mr. C. J. Wamser (VTY)

USNRC Regional Administrator, Region I
USNRC Regional Administrator, Region III

USNRC Project Manager, Big Rock Point
USNRC Project Manager, Indian Point 1
USNRC Project Manager, Indian Point 2 / 3
USNRC Project Manager, J. A. FitzPatrick
USNRC Project Manager, Palisades
USNRC Project Manager, Pilgrim
USNRC Project Manager, Vermont Yankee

USNRC Resident Inspector, Indian Point 2 / 3
USNRC Resident Inspector, J. A. FitzPatrick
USNRC Resident Inspector, Palisades
USNRC Resident Inspector, Pilgrim
USNRC Resident Inspector, Vermont Yankee

Michigan Department of Environmental Quality
Michigan Public Service Commission
NYS Department of Public Service
Vermont Department of Public Service
Downs Rachlin Martin PLLC / St. Johnsbury, VT
Massachusetts Emergency Management Agency

Attachment 1
ENOC-13-00007
(Page 1 of 2)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Indian Point 1
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1) and 10 CFR 50.82(a)(8)(v)

Plant Name: **Indian Point Nuclear Generating Unit No. 1**

10 CFR 50.75(f)(1)

- | | |
|---|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2012\$) | \$ 543.77 million
[Note] |
| 2. Decommissioning Trust Fund Total
as of 12/31/12 | \$ 329.84 million |
| 3. A schedule of the annual amounts remaining to be collected | None |
| 4. Assumptions used in determining rates of escalation in
decommissioning costs, rates of earnings on decommissioning
funds, and rates of other factors used in funding projections | 2% annual real rate
of return per 10
CFR 50.75(e)(1)(i) |
| 5. Any contracts upon which the licensee is relying pursuant to 10
CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of providing
financial assurance since the last submitted report | None |
| 7. Any material changes to trust agreements | None |

Note: This amount is based upon total SAFSTOR expenditures for radiological remediation and license termination set forth in the updated Decommissioning Funding Assurance Plan and SAFSTOR analysis that are provided in Attachment 14. (Calculation of the NRC Minimum Amount is provided in Attachment 4.)

Attachment 1
ENOC-13-00007
(Page 2 of 2)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Indian Point 1
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1) and 10 CFR 50.82(a)(8)(v)

Plant Name: **Indian Point Nuclear Generating Unit No. 1**

10 CFR 50.82(a)(8)(v)

- | | |
|---|---|
| 1. Cumulative decommissioning spending | \$ 123.83 million
[Note1] |
| 2. 2012 decommissioning spending | \$ 8.67 million
[Note1] |
| 3. Fund Balance | See above in 10
CFR 50.75
information |
| 4. No other financial assurance mechanism is being relied upon, but costs to date have been funded by operations. | |
| 5. Estimated costs to complete from latest estimate | \$ 543.77 million
[Note2] |
| 6. Estimate is based on unrestricted release of the site per 10 CFR 20.1402 | |
| 7. Modifications to financial assurance since last report | See above in 10
CFR 50.75
information |
| 8. Any material changes to trust agreements | See above in 10
CFR 50.75
information |

Note 1: Entergy does not possess records that would permit determination of charges to IP1 prior to its acquisition in September 2001 by Entergy Nuclear Indian Point 2, LLC. The costs presented here represent those costs charged in 2012 and the total costs that have been assigned to IP1 since 2001. Entergy has not fully determined what portion of those costs would be considered "decommissioning" costs as that term is defined in 10 CFR 50.2.

Note 2: This amount is based upon total SAFSTOR expenditures for radiological remediation and license termination set forth in the updated Decommissioning Funding Assurance Plan and SAFSTOR analysis that are provided in Attachment 14. (Calculation of the NRC Minimum Amount is provided in Attachment 4.) This estimate does not include costs prior to the current license expiration date for IP-2 in 2013 because current costs are being paid out of operating funds.

Attachment 2
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Indian Point 2
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Plant Name: **Indian Point Nuclear Generating Unit No. 2**

- | | |
|---|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2012\$) | \$ 799.74 million
[Note 1] |
| 2. Decommissioning Trust Fund Total
as of 12/31/12 | \$ 427.75 million
[Note 2] |
| 3. A schedule of the annual amounts remaining to be collected | None |
| 4. Assumptions used in determining rates of escalation in
decommissioning costs, rates of earnings on decommissioning
funds, and rates of other factors used in funding projections | 2% annual real rate
of return per 10
CFR 50.75(e)(1)(i) |
| 5. Any contracts upon which the licensee is relying pursuant to 10
CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of providing
financial assurance since the last submitted report | None |
| 7. Any material changes to trust agreements | None |

Note 1: This amount is based upon total SAFSTOR expenditures for radiological remediation and license termination set forth in the updated Decommissioning Funding Assurance Plan and SAFSTOR analysis provided in Attachment 15. (Calculation of the NRC Minimum Amount is provided in Attachment 4.)

Note 2: Includes provisional fund balance of \$31.5 million.

Attachment 3
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – Indian Point 3
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Plant Name: **Indian Point Nuclear Generating Unit No. 3**

- | | |
|---|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2012\$) | \$ 521.89 million
[Note] |
| 2. Decommissioning Trust Fund Total
as of 12/31/12 | \$ 567.19 million |
| 3. A schedule of the annual amounts remaining to be collected | None |
| 4. Assumptions used in determining rates of escalation in
decommissioning costs, rates of earnings on decommissioning
funds, and rates of other factors used in funding projections | 2% annual real rate
of return per 10
CFR 50.75(e)(1)(i) |
| 5. Any contracts upon which the licensee is relying pursuant to 10
CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of providing
financial assurance since the last submitted report | None |
| 7. Any material changes to trust agreements | None |

Note: Calculation of the NRC Minimum Amount is provided in Attachment 4.

Attachment 4
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount – Indian Point
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Entergy Nuclear Indian Point 2, LLC: 100% ownership interest of Indian Point 1 & 2

Entergy Nuclear Indian Point 3, LLC: 100% ownership interest of Indian Point 3

Plant Location: Buchanan, New York

Reactor Type: Pressurized Water Reactor ("PWR")

Indian Point Unit 1 Power Level: <3,400 MWt (615 MWt)

Indian Point Unit 1 PWR Base Year 1986\$: \$85,560,000

Indian Point Unit 2 Power Level: <3,400 MWt (3,216 MWt)

Indian Point Unit 2 PWR Base Year 1986\$: \$103,300,800

Indian Point Unit 3 Power Level: <3,400 MWt (3,216 MWt)

Indian Point Unit 3 PWR Base Year 1986\$: \$103,300,800

Labor Region: North

Waste Burial Facility: Generic Disposal Site

10CFR50.75(c)(2) Escalation Factor Formula:

$$0.65(L) + 0.13(E) + 0.22(B)$$

	<u>Factor</u>
L=Labor (North)	2.55 ¹
E=Energy (PWR)	2.63 ²
B=Waste Burial-Vendor (PWR)	13.885 ³

PWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 5.05214$$

1986 PWR Base Year \$ Escalated:

$$\text{Indian Point 1: } \$85,560,000 * \text{Factor} = \underline{\underline{\$432,260,717}}$$

$$\text{Indian Point 2 \& 3: } \$103,300,800 * \text{Factor} = \underline{\underline{\$521,889,643}}$$

¹ Bureau of Labor Statistics, Series Report ID: CIU2010000000210i (4th Quarter 2012)

² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2012)

³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2012)

Attachment 5
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding Vermont Yankee
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Plant Name: **Vermont Yankee Nuclear Power Station**

- | | |
|---|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2012\$) | \$ 620.84 million ^[Note] |
| 2. Decommissioning Trust Fund Total
as of 12/31/12 | \$ 543.26 million |
| 3. A schedule of the annual amounts remaining to be collected | None. |
| 4. Assumptions used in determining rates of escalation in
decommissioning costs, rates of earnings on decommissioning
funds, and rates of other factors used in funding projections | 2% annual real rate
of return per 10 CFR
50.75(e)(1)(i) |
| 5. Any contracts upon which the licensee is relying pursuant to 10
CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of
providing financial assurance since the last submitted report | None |
| 7. Any material changes to trust agreements | None |

Note: Calculation of the NRC Minimum Amount is provided in Attachment 6.

Attachment 6
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount - Vermont Yankee
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Entergy Nuclear Vermont Yankee LLC.: 100% ownership interest
Plant Location: Vernon, Vermont
Reactor Type: Boiling Water Reactor ("BWR")
Power Level: <3,400 MWt (1912 MWt)
BWR Base Year 1986\$: \$121,208,000
Labor Region: North
Waste Burial Facility: Generic Disposal Site

10CFR50.75(c)(2) Escalation Factor Formula:

$$0.65(L) + 0.13(E) + 0.22(B)$$

	<u>Factor</u>
L=Labor (North)	2.55 ¹
E=Energy (BWR)	2.70 ²
B=Waste Burial-Vendor (BWR)	14.160 ³

BWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 5.12213$$

1986 BWR Base Year \$ Escalated:

$$\$121,208,000 * \text{Factor} = \$620,842,653$$

¹ Bureau of Labor Statistics, Series Report ID: CIU2010000000210i (4th Quarter 2012)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2012)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2012)

Attachment 7
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding - Pilgrim
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Plant Name: **Pilgrim Nuclear Power Station**

- | | |
|--|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2012\$) | \$ 626.19 million ^[Note] |
| 3. Decommissioning Trust Fund Total
as of 12/31/12 | \$ 725.41 million |
| 3. A schedule of the annual amounts remaining to be collected | None |
| 4. Assumptions used in determining rates of escalation in
decommissioning costs, rates of earnings on
decommissioning funds, and rates of other factors used in
funding projections | 2% annual real rate
of return per 10 CFR
50.75(e)(1)(i) |
| 5. Any contracts upon which the licensee is relying pursuant to 10
CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of
providing financial assurance since the last submitted report | None |
| 7. Any material changes to trust agreements | None |

Note: Calculation of the NRC Minimum Amount is provided in Attachment 8.

Attachment 8
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount - Pilgrim
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Entergy Nuclear Generation Co.: 100% ownership interest
Plant Location: Plymouth, Massachusetts
Reactor Type: Boiling Water Reactor ("BWR")
Power Level: <3,400 MWt (2028 MWt)
BWR Base Year 1986\$: \$122,252,000
Labor Region: North
Waste Burial Facility: Generic Disposal Site

10CFR50.75(c)(2) Escalation Factor Formula:

$$0.65(L) + 0.13(E) + 0.22(B)$$

	<u>Factor</u>
L=Labor (North)	2.55 ¹
E=Energy (BWR)	2.70 ²
B=Waste Burial-Vendor (BWR)	14.160 ³

BWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 5.12213$$

1986 BWR Base Year \$ Escalated:

$$\$122,252,000 * \text{Factor} = \$626,190,152$$

¹ Bureau of Labor Statistics, Series Report ID: CIU2010000000210i (4th Quarter 2012)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2012)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2012)

Attachment 9
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – James A. Fitzpatrick
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Plant Name: **James A. Fitzpatrick Nuclear Power Plant**

- | | |
|--|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2012\$) | \$ 649.61 million ^[Note] |
| 2. Decommissioning Trust Fund Total
as of 12/31/12 | \$ 618.91 million |
| 3. A schedule of the annual amounts remaining to be collected | None |
| 4. Assumptions used in determining rates of escalation in
decommissioning costs, rates of earnings on
decommissioning funds, and rates of other factors used in
funding projections | 2% annual real rate
of return per 10 CFR
50.75(e)(1)(i) |
| 5. Any contracts upon which the licensee is relying pursuant to
10 CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of
providing financial assurance since the last submitted
report | None |
| 7. Any material changes to trust agreements | None |

Note: Calculation of the NRC Minimum Amount is provided in Attachment 10.

Attachment 10
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount – James A. Fitzpatrick
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Entergy Nuclear FitzPatrick LLC: 100% ownership interest
Plant Location: Oswego, New York
Reactor Type: Boiling Water Reactor ("BWR")
Power Level: <3,400 MWt (2536 MWt)
BWR Base Year 1986\$: \$126,824,000
Labor Region: North
Waste Burial Facility: Generic Disposal Site

10CFR50.75(c)(2) Escalation Factor Formula:
0.65(L) +0.13(E) +0.22(B)

	<u>Factor</u>
L=Labor (North)	2.55 ¹
E=Energy (BWR)	2.70 ²
B=Waste Burial-Vendor (BWR)	14.160 ³

BWR Escalation Factor:
0.65(L) +0.13(E) +0.22(B)= 5.12213

1986 BWR Base Year \$ Escalated:
\$126,824,000 * Factor= \$649,608,512

¹ Bureau of Labor Statistics, Series Report ID: CIU2010000000210i (4th Quarter 2012)
² Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2012)
³ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2012)

Attachment 11
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – Palisades
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Plant Name: **Palisades Nuclear Plant**

- | | |
|--|---|
| 1. Minimum Financial Assurance (MFA)
estimated per 10 CFR 50.75(b) and (c) (2012\$) | \$ 484.33 million ^[Note] |
| 2. Decommissioning Trust Fund Total
as of 12/31/12 | \$ 307.90 million |
| Decommissioning Trust Fund Total
as of 2/28/13 | \$ 318.14 million |
| 3. A schedule of the annual amounts remaining to be
collected | None |
| 4. Assumptions used in determining rates of escalation in
decommissioning costs, rates of earnings on
decommissioning funds, and rates of other factors used
in funding projections | 2% annual real rate of
return per 10 CFR
50.75(e)(1)(i) |
| 5. Any contracts upon which the licensee is relying pursuant
to 10 CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of
providing financial assurance since the last submitted
report | None |
| 7. Any material changes to trust agreements | None |

Note: Calculation of the NRC Minimum Amount is provided in Attachment 12.

Attachment 12
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Calculation of Minimum Amount – Palisades
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Entergy Nuclear Palisades LLC.: 100% ownership interest

Plant Location: Covert, Michigan

Reactor Type: Pressure Water Reactor ("PWR")

Power Level: <3,400 MWt (2565 MWt)

PWR Base Year 1986\$: \$97,572,000

Labor Region: Midwest

Waste Burial Facility: Generic Disposal Site

10CFR50.75(c)(2) Escalation Factor Formula:

$$0.65(L) + 0.13(E) + 0.22(B)$$

	<u>Factor</u>
L=Labor (Midwest)	2.411 ¹³
E=Energy (PWR)	2.63 ¹⁴
B=Waste Burial-Vendor (PWR)	13.885 ¹⁵

PWR Escalation Factor:

$$0.65(L) + 0.13(E) + 0.22(B) = 4.96379$$

1986 PWR Base Year \$ Escalated:

$$\$97,572,000 * \text{Factor} = \$484,326,678$$

¹³ Bureau of Labor Statistics, Series Report ID: CIU2010000000230i (4th Quarter 2012)

¹⁴ Bureau of Labor Statistics, Series Report ID: wpu0543 and wpu0573 (December 2012)

¹⁵ Nuclear Regulatory Commission: NUREG-1307 Revision 15, Table 2.1 (2012)

Attachment 13
ENOC-13-00007
(Page 1 of 1)

Entergy Nuclear Operations, Inc.
Status of Decommissioning Funding – Big Rock Point
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Plant Name: **Big Rock Point ISFSI**

- | | |
|---|--|
| 1. Amount of decommissioning funds required from most recent estimate (2012 dollars). | \$ 1.55 million ^[Note] |
| 2. Decommissioning Funding Assurance Method. | Parent Guarantee (\$5 million) |
| 3. A schedule of the annual amounts remaining to be collected | None |
| 4. Assumptions used in determining rates of escalation in decommissioning costs, rates of earnings on decommissioning funds, and rates of other factors used in funding projections | Escalation rate: 3.0%
Rate of earnings: n/a |
| 5. Any contracts upon which the licensee is relying pursuant to 10 CFR 50.75(e)(1)(v) | None |
| 6. Modifications occurring to a licensee's current method of providing financial assurance since the last submitted report | None |
| 7. Any material changes to trust agreements | None |

Note: See 10 CFR §73.30 filing for Big Rock Point, dated December 13, 2012, Accession No. ML12352A126.

Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

On October 23, 2008, Entergy Nuclear Indian Point 2, LLC (ENIP2) submitted a preliminary decommissioning cost analysis to the NRC in conjunction with its spent fuel management plan under 10 CFR 50.75(f)(3) and 10 CFR 50.54(bb) (Accession No. ML083040378, as supplemented by ENIP2's reply to RAs on July 15, 2009 (Accession No. ML092050204). The preliminary decommissioning cost analysis contained separate site-specific decommissioning cost estimates for Indian Point 1 and Indian Point 2. The estimates were subsequently found to be reasonable by the NRC on March 17, 2010 (Accession No. ML100280544).

Pursuant to Regulatory Guide 1.159, Revision 2, adjustment to the site-specific cost estimates should be made at least once a year for the effects of inflation. Adjustment to site-specific cost estimates for the effects of technological and status changes should be made according to the amount of change experienced, as appropriate, but in no event, less than once every 5 years. As such, ENIP2 has updated the aforementioned estimates consistent with the requirements of Regulatory Guide 1.159, Revision 2.

ENIP2 has determined that use of a SAFSTOR analysis shows that there is presently reasonable assurance that adequate funds will be available for the decommissioning process in compliance with NRC decommissioning funding assurance rules.

Pursuant to 10 CFR 50.75(e)(1)(i), "A licensee that has prepaid funds based on a site-specific estimate under § 50.75(b)(1) of this section may take, credit for projected earnings on the prepaid decommissioning trust funds, using up to a 2 percent annual real rate of return from the time of future funds' collection through the projected decommissioning period, provided that the site-specific estimate is based on a period of safe storage that is specifically described in the estimate." ENIP2 understands that a facility specific analysis may be used for demonstrating the adequacy of decommissioning funds, provided that "the NRC-required cost estimate for decommissioning costs as defined in 10 CFR 50.2 is equal to or greater than the amount stated in the formulas in 10 CFR 50.75(c)(1) and (2) as the basis for justifying a higher than minimum funding level." (Regulatory Guide 1.159 Rev. 2, Section 1.1.1.) ENIP2 also understands that NRC should be provided the analysis, and that the analysis should include data for each year of the analysis.

The updated Indian Point 1 site-specific decommissioning cost estimate is based on a period of safe storage that is specifically described in the estimate, at which time the plant will be decommissioned and the site released for alternative use without restriction. Table 14-1 below provides the annual license termination costs computed in the updated estimate. These costs to date have been funded by operations, and not by the decommissioning fund. The decommissioning trust fund (DTF) ending balance is escalated each year by the 2% real growth figure allowed pursuant to 10 CFR 50.75(e)(1)(i).

Attachment 14
ENOC-13-00007
(Page 2 of 4)

Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

Table 14-1		
NRC License Termination Cost (\$ millions)		
	2012 \$ Unit 1 Radiological	Ending DTF Balance
2012		329.839
2013	0.909	335.527
2014	3.634	338.603
2015	3.634	341.741
2016	3.644	344.932
2017	3.634	348.196
2018	3.634	351.526
2019	3.634	354.922
2020	3.644	358.376
2021	3.634	361.910
2022	3.634	365.514
2023	3.634	369.190
2024	3.644	372.929
2025	3.634	376.753
2026	3.634	380.654
2027	3.634	384.633
2028	3.644	388.682
2029	3.634	392.821
2030	3.634	397.043
2031	3.634	401.350
2032	3.644	405.732
2033	3.634	410.213
2034	3.634	414.783
2035	3.634	419.444
2036	3.644	424.189
2037	3.634	429.038
2038	3.634	433.985
2039	3.634	439.030
2040	3.644	444.167
2041	3.634	449.416
2042	3.634	454.770
2043	3.634	460.231
2044	3.644	465.792
2045	3.634	471.473
2046	3.634	477.268
2047	3.634	483.179

Attachment 14
ENOC-13-00007
(Page 3 of 4)

Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

2048	3.644	489.199
2049	3.634	495.349
2050	3.634	501.621
2051	3.634	508.019
2052	3.644	514.536
2053	3.634	521.192
2054	3.634	527.982
2055	3.634	534.907
2056	3.644	541.961
2057	3.634	549.166
2058	3.634	556.515
2059	3.634	564.011
2060	3.644	571.647
2061	3.634	579.446
2062	3.634	587.400
2063	3.634	595.514
2064	3.644	603.780
2065	26.813	589.043
2066	59.025	541.799
2067	98.580	454.055
2068	104.740	358.396
2069	15.056	350.508
2070	15.208	342.310
2071	15.208	333.948
2072	15.250	325.376
2073	7.500	324.384
Total	543.766	

Attachment 14
ENOC-13-00007
(Page 4 of 4)

Entergy Nuclear Operations, Inc.
IP1 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

As can be seen from the information provided in Table 14-1, the required funding for SAFSTOR decommissioning, \$543.77 million, is greater than the NRC formula amount per 10 CFR 50.75(b) and 1(c) of \$432.26 million, therefore, the site-specific analysis complies with the requirement from Regulatory Guide 1.159 section 1.1.1 previously discussed. The foregoing SAFSTOR analysis shows that when the December 31, 2012 DTF balance is escalated at the allowable rate and compared against the annual figures for the SAFSTOR period, that an approximately \$324.38 million surplus exists at the end of the decommissioning project. Accordingly, ENIP2 concludes that no further action is required at this time to demonstrate adequate funding assurance for decommissioning Indian Point 1.

Attachment 15
ENOC-13-00007
(Page 1 of 4)

Entergy Nuclear Operations, Inc.
IP2 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

On August 13, 2009, Entergy Nuclear Indian Point 2, LLC (ENIP2) submitted a decommissioning funding assurance plan for Indian Point Energy Center, Unit 2 (Indian Point 2) (Accession No. ML 092260720). The plan was in response to a projected decommissioning funding shortfall for ENIP2 and the subsequent need to describe how and when the licensee intends to make adjustments to its financial assurance mechanisms. This attachment provides an update to the August 13, 2009 funding plan.

On October 23, 2008, ENIP2 submitted a site specific decommissioning cost estimate to the NRC in conjunction with its preliminary decommissioning cost estimate, and spent fuel management plan under 10 CFR 50.75(f)(3) and 10 CFR 50.54(bb) (Accession No. ML083040378, as supplemented by ENIP2's reply to RAIs on July 15, 2009 (Accession No. ML092050204). That submittal contained separate site-specific decommissioning cost estimates for Indian Point 1 and Indian Point 2. The Indian Point 2 site-specific decommissioning cost estimate that was submitted was based on a period of safe storage that is specifically described in the estimate, at which time the plant will be decommissioned and the site released for alternative use without restriction. Table 4 in the Indian Point 2 site-specific estimate (Accession No. ML083040378, page 31 of 38) provides the annual license termination phase expenditures for Indian Point 2 in 2007 dollars.

Pursuant to Regulatory Guide 1.159, Revision 2, adjustment to the site-specific cost estimates should be made at least once a year for the effects of inflation. Adjustment to site-specific cost estimates for the effects of technological and status changes should be made according to the amount of change experienced, as appropriate, but in no event, less than once every 5 years. As such, ENIP2 has updated the aforementioned estimates consistent with the requirements of Regulatory Guide 1.159, Revision 2.

ENIP2 has determined that use of a SAFSTOR analysis shows that there is presently reasonable assurance that adequate funds will be available for the decommissioning process in compliance with NRC decommissioning funding assurance rules.

Pursuant to 10 CFR 50.75(e)(1)(i), "A licensee that has prepaid funds based on a site-specific estimate under § 50.75(b)(1) of this section may take, credit for projected earnings on the prepaid decommissioning trust funds, using up to a 2 percent annual real rate of return from the time of future funds' collection through the projected decommissioning period, provided that the site-specific estimate is based on a period of safe storage that is specifically described in the estimate." ENIP2 understands that a facility specific analysis may be used for demonstrating the adequacy of decommissioning funds, provided that "the NRC-required cost estimate for decommissioning costs as defined in 10 CFR 50.2 is equal to or greater than the amount stated in the formulas in 10 CFR 50.75(c)(1) and (2) as the basis for justifying a higher than minimum funding level." (Regulatory Guide 1.159, Rev. 2, Section 1.1.1.) ENIP2 also understands that NRC should be provided the analysis, and that the analysis should include data for each year of the analysis.

Attachment 15
ENOC-13-00007
(Page 2 of 4)

Entergy Nuclear Operations, Inc.
IP2 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

The updated Indian Point 2 site-specific decommissioning cost estimate is based on a period of safe storage that is specifically described in the estimate, at which time the plant will be decommissioned and the site released for alternative use without restriction. Table 15-1 below provides the annual license termination costs computed in the updated estimate. The decommissioning trust fund (DTF) ending balance is escalated each year by the 2% real growth figure allowed pursuant to 10 CFR 50.75(e)(1)(i).

Table 15-1		
NRC License Termination Cost (\$ millions)		
	2012 \$ Unit 2 Radiological	Ending DTF Balance
2012		427.745
2013	20.446	415.854
2014	82.904	341.267
2015	31.777	316.315
2016	5.613	317.028
2017	5.598	317.770
2018	5.598	318.528
2019	5.598	319.300
2020	5.613	320.073
2021	5.598	320.877
2022	5.598	321.696
2023	5.598	322.532
2024	5.613	323.369
2025	4.775	325.062
2026	3.974	327.590
2027	3.974	330.168
2028	3.984	332.787
2029	3.974	335.469
2030	3.974	338.205
2031	3.974	340.996
2032	3.984	343.831
2033	3.974	346.734
2034	3.974	349.695
2035	3.974	352.716
2036	3.984	355.786
2037	3.974	358.928
2038	3.974	362.133
2039	3.974	365.402
2040	3.984	368.725
2041	3.974	372.126

Attachment 15
ENOC-13-00007
(Page 3 of 4)

Entergy Nuclear Operations, Inc.
IP2 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

2042	3.974	375.595
2043	3.974	379.134
2044	3.984	382.732
2045	3.974	386.413
2046	3.974	390.168
2047	3.974	393.998
2048	3.984	397.893
2049	3.974	401.878
2050	3.974	405.942
2051	3.974	410.087
2052	3.984	414.304
2053	3.974	418.617
2054	3.974	423.016
2055	3.974	427.502
2056	3.984	432.068
2057	3.974	436.736
2058	3.974	441.497
2059	3.974	446.353
2060	4.051	451.229
2061	5.413	454.841
2062	5.413	458.525
2063	44.779	422.916
2064	110.101	321.274
2065	161.161	166.538
2066	78.912	90.957
2067	15.968	76.808
2068	15.013	63.331
2069	21.447	43.150
2070	3.422	40.591
2071	3.422	37.981
2072	3.431	35.310
2073	1.688	34.329
Total	799.738	

Attachment 15
ENOC-13-00007
(Page 4 of 4)

Entergy Nuclear Operations, Inc.
IP2 DTF Balance Based on Decommissioning Funding Assurance Plan
For Year Ending December 31, 2012 - 10 CFR 50.75(f)(1)

As can be seen from the information provided in Table 15-1, the required funding for SAFSTOR decommissioning, \$799.738 million, is greater than the NRC formula amount per 10 CFR 50.75(b) and 1(c) of \$521.9 million, therefore, the site-specific analysis complies with the requirement from Regulatory Guide 1.159 section 1.1.1 previously discussed. The foregoing SAFSTOR analysis shows that when the December 31, 2012 DTF balance is escalated at the allowable rate and compared against the annual figures for the SAFSTOR period, that an approximately \$34.3 million surplus exists at the end of the decommissioning project. Accordingly, ENIP2 concludes that no further action is required at this time to demonstrate adequate funding assurance for decommissioning Indian Point 2.

Attachment 16
ENOC-13-00007
 (Page 1 of 8)

Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets

Plant name:

Indian Point, Unit 1

Year of Biennial:

Month

Day

Year

1

1

2013

Termination of Operation:

9

28

2066

SAFSTOR Site Specific

	<u>MWth</u>	<u>1986\$</u>	ECI	Base Lx		<u>Lx</u>	Px	Fx		<u>Ex</u>		<u>Bx</u>
PWR	615	\$85,560,000	117.9	2.16	0.65	2.55	1.865	3.690	0.13	2.632	0.22	13.885

NRC Minimum:

\$432,260,717

Site Specific:

\$543,765,612

<u>Licensee:</u>	<u>% Owned:</u>	<u>Amount of NRC Minimum/Site Specific:</u>	<u>Amount in Trust Fund:</u>
Entergy	100.00%	\$543,765,612	\$329,838,892

Note: See Attachment 14 for adequacy of the trust fund

Attachment 16
ENOC-13-00007
 (Page 2 of 8)

Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets

Plant name:

Indian Point, Unit 2

Year of Biennial:

Month

Day

Year

1

1

2012

Termination of Operation:

9

28

2064

SAFSTOR Site Specific

	<u>MWth</u>	<u>1986\$</u>	ECI	Base Lx		<u>Lx</u>	Px	Fx		<u>Ex</u>		<u>Bx</u>
PWR	3216	\$103,300,800	117.9	2.16	0.65	2.55	1.865	3.690	0.13	2.632	0.22	13.885

NRC Minimum:

\$521,889,643

Site Specific:

\$799,738,297

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$799,738,297	\$427,745,010

NOTE: See Attachment 15 for the adequacy of the Trust Fund

Note: See Attachment 15 for adequacy of the trust fund

Attachment 16
ENOC-13-00007
 (Page 3 of 8)

Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets

Plant name: **Indian Point, Unit 3**

	Month	Day	Year
Year of Biennial:	1	1	2013
Termination of Operation:	12	12	2015

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
PWR	3216	\$103,300,800	117.9	2.16	0.65	2.55	1.865	3.690	0.13	2.63	0.22	13.885

NRC Minimum: \$521,889,643

Site Specific:

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$521,889,643	\$567,194,920

Step 1:
Earnings Credit:

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$567,194,920	2%	2.95	1.06009	\$601,278,050	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license

Step 2:

Accumulation:

Value of Annuity per year	Real Rate of Return per	Years of Annuity:	Total Annuity:
\$0	2%	0	\$0

Step 3:
Decom Period:

Total Earnings:	Real Rate of Return per	Decom Period:	Total Real Rate of	Total Earnings for Decom:	
\$601,278,050	2%	7	0.14869	\$44,700,714	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	
\$645,978,764	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	\$124,089,121 to NRC minimum
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Attachment 16
ENOC-13-00007
 (Page 4 of 8)

Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets

Plant name: Vermont Yankee Power Station

	Month	Day	Year
Year of Biennial:	1	1	2013
Termination of Operation:	3	21	2032

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
BWR	1912	\$121,208,000	117.9	2.16	0.65	2.55	1.865	3.690	0.13	2.70	0.22	14.16

NRC Minimum: \$620,842,653 **Site Specific:**

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$620,842,653	\$543,260,693

Step 1:
Earnings Credit:

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$543,260,693	2%	19.22	1.46321	\$794,906,688	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license

Step 2:

Accumulation:

Value of Annuity per year	Real Rate of Return per	Years of Annuity:	Total Annuity:
\$0	2%	0	\$0

Step 3:

Decom Period:

Total Earnings:	Real Rate of Return per	Decom Period:	Total Real Rate of	Total Earnings for Decom:	
\$794,906,688	2%	7	0.14869	\$59,095,616	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	
\$854,002,304	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	233,159,651	to NRC minimum
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Attachment 16
ENOC-13-00007
 (Page 5 of 8)

Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets

Plant name:

Pilgrim

	Month	Day	Year
Year of Biennial:	1	1	2013
Termination of Operation	6	8	2032

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
BWR	2028	\$122,252,000	117.9	2.16	0.65	2.55	1.865	3.690	0.13	2.70	0.22	14.16

NRC Minimum:

\$626,190,152

Site Specific:

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$626,190,152	\$725,405,364

Step 1:
Earnings Credit:

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$725,405,364	2%	19.44	1.46944	\$1,065,939,033	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license

Step 2:

Accumulation:

Value of Annuity per year	Real Rate of Return per	Years of Annuity:	Total Annuity:
\$0	2%	0	\$0

Step 3:
Decom Period:

Total Earnings:	Real Rate of Return per	Decom Period:	Total Real Rate of	Total Earnings for Decom:	
\$1,065,939,033	2%	7	0.14869	\$79,244,928	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	
\$1,145,183,962	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	518,993,810	to NRC minimum
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Attachment 16
ENOC-13-00007
 (Page 6 of 8)

Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets

Plant name: **James A. Fitzpatrick**

	Month	Day	Year
Year of Biennial:	1	1	2013
Termination of Operation	10	17	2034

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
BWR	2536	\$126,824,000	117.9	2.16	0.65	2.55	1.865	3.690	0.13	2.70	0.22	14.16

NRC Minimum: \$649,608,512

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$649,608,512	\$618,912,849

Step 1:
Earnings Credit:

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$618,912,849	2%	21.79	1.53968	\$952,928,308	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license

Step 2:

Accumulation:

Value of Annuity per year	Real Rate of Return per	Years of Annuity:	Total Annuity:
\$0	2%	0	\$0

Step 3:
Decom Period:

Total Earnings:	Real Rate of Return per	Decom Period:	Total Real Rate of	Total Earnings for Decom:	
\$952,928,308	2%	7	0.14869	\$70,843,391	Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	
\$1,023,771,699	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	\$374,163,187	to NRC minimum
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Attachment 16
ENOC-13-00007
 (Page 7 of 8)

Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets

Plant name: **Palisades Nuclear Plant**

	Month	Day	Year
Year of Biennial:	1	1	2013
Termination of Operation:	3	24	2031

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
PWR	2565	\$97,572,000	115.9	2.08	0.65	2.411	1.865	3.690	0.13	2.63	0.22	13.885

NRC Minimum: \$484,326,678

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$484,326,678	\$307,898,760

Step 1:
Earnings Credit:

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$307,898,760	2%	18.23	1.43476	\$441,759,932	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license

Step 2:

Accumulation:

Value of Annuity per year	Real Rate of Return per	Years of Annuity:	Total Annuity:
\$0	2%	0	\$0

Step 3:

Decom Period:

Total Earnings:	Real Rate of Return per	Decom Period:	Total Real Rate of	Total Earnings for Decom:
\$441,759,932	2%	7	0.14869	\$32,841,685

Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	
\$474,601,617	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall) (\$9,725,061) to NRC minimum

Attachment 16
ENOC-13-00007
 (Page 8 of 8)

Entergy Nuclear Operations, Inc.
Minimum Financial Assurance Calculation Worksheets

Plant name:

Palisades Nuclear Plant

	Month	Day	Year
Year of Biennial:	3	1	2013
Termination of Operation:	3	24	2031

	MWth	1986\$	ECI	Base Lx		Lx	Px	Fx		Ex		Bx
PWR	2565	\$97,572,000	115.9	2.08	0.65	2.41	1.865	3.690	0.13	2.632	0.22	13.885

NRC Mimimum: \$484,326,678

Licensee:	% Owned:	Amount of NRC Minimum/Site Specific:	Amount in Trust Fund:
Entergy	100.00%	\$484,326,678	\$318,142,920

Step 1:
Earnings Credit:

Trust Fund Balance:	Real Rate of Return per	Years Left in License	Total Real Rate of	Total Earnings:	
\$318,142,920	2%	18.06	1.43003	\$454,953,786	Total Earnings = Trust Fund balance x (1+RRR)^Years left in license

Step 2:

Accumulation:

Value of Annuity per year	Real Rate of Return per	Years of Annuity:	Total Annuity:
\$0	2%	0	\$0

Step 3:
Decom Period:

Total Earnings:	Real Rate of Return per	Decom Period:	Total Real Rate of	Total Earnings for Decom:
\$454,953,786	2%	7	0.14869	\$33,822,554

Total Earnings for Decom = (1/2) x Total Earnings x [(1+RRR)^Decom period - 1]

Total of Steps 1 - 3:	
\$488,776,339	Total = Total Earnings + Total Earnings for Decom

Excess (Shortfall)	\$4,449,661	to NRC minimum
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